

Are we really dressed to kill?

Kidney International (2009) 75, 131–132. doi:10.1038/ki.2008.630



Figure 1 | Portrait of Dr. Samuel D. Gross (*The Gross Clinic*), Thomas Eakins. Philadelphia Museum of Art: Gift of the Alumni Association to Jefferson Medical College in 1878, purchased by the Pennsylvania Academy of the Fine Arts and the Philadelphia Museum of Art in 2007 with the generous support of more than 3000 donors.

On a recent visit to the UK, a local physician told me that the National Health Service (NHS) has banned the use of ties (and other unnecessary items of clothing) by doctors. But a reading of the actual directive was fuzzier;¹ the NHS asserted that it wanted to ban the long sleeves as part of the battle against MRSA and *Clostridium difficile*, although also stating that there is no evidence that white coats transmit the bacteria. Amusingly, the title of the report implies that it is evidence-based, though worded in a somewhat coy manner. However, all newspapers trumpeted the story that it was the white coat that was to be jettisoned. What next? Ban the stethoscope? In 1992 we started at Columbia a widely copied ceremony in which entering medical students are given a white coat in the presence of their professors and often their parents; this is followed by lectures ostensibly to inculcate in them the humanistic aspects of medicine. But you don't have to be an anthropologist to recognize that investing them (literally) with a white coat is a ritual of induction into a guild. Uniforms have always been a way of separating Us from Them and have a long history going at least as far back as 2550 BC, when the celebrated *Stele of the Vultures* (now in the Louvre) shows a platoon of soldiers wearing identical helmets and other items of dress. In this victory stele, the foot soldiers are shown marching on the backs of their defeated enemies, who are shown naked. Thus clothes have always been used as an instrument of power and differentiation.

White coats, like all uniforms, have a kind of aura about them, though theirs is somewhat different from that of a military uniform. I remember that when I first came to America, I and what seemed like all of the doctors in Baltimore used to religiously attend medical grand rounds at Johns Hopkins Hospital. This was truly a grand affair; the audience came early, and no one sat in the first two or three rows of the very large auditorium. A few minutes before the hour, in trooped the Osler Medical House staff, dressed in crisp white short jackets, followed by the chief resident and the chief of medicine, dressed in long white coats, and all sat in what appeared to be predesignated seats. It was a thrilling sight full of pomp and circumstance and it had a sense of occasion that was magnified by the fact that it was held on Saturday mornings when

the audience members were in 'civilian' clothing. Was I the only one who expected these white-clad celebrants to suddenly break out into the ecstatic chorus that closes the first act of Mozart's opera *The Magic Flute*, where the priests sing, "Then is the Earth a heavenly kingdom, and mortals immediately are Gods"?

Like all uniforms, military or otherwise, white coats have both a functional and a symbolic role. The need to protect the doctor's clothing and to prevent transmission of infectious particles to patients is obvious and is emphasized by the white color. Because of its similarity to a lab coat, the white coat also invests doctors with the power of science, giving them the aura of having precise and verifiable knowledge. The move in the nineteenth century to a practice based in hospitals, with their possibility of having laboratories, cemented this conjunction, allowing doctors to assume the powerful and authoritative role of scientific healers.² With the beginnings of the germ theory, the discovery of the importance of hand washing by Semmelweis, and the use of disinfectants, the idea of protection from the spread of germs must have been the driving force for wearing protective garb. The chronology of the development of the white coat is dramatically illustrated in two paintings by Thomas Eakins of Philadelphia. In 1875 he painted Dr. Gross performing surgery in his frock coat at the Jefferson Medical College. Fourteen years later, he painted Dr. Agnew performing a dissection in front of the class of the University of Pennsylvania; this time the doctor and his assistants were wearing crisp white coats. In between these dates, Pasteur had discovered that anaerobic fermentation could be due to bacteria, and Lister had published his first paper on the need for sterility in surgery. The contrast in these paintings is an advertisement for this new view; Dr. Gross is pictured in a gloomy and dark amphitheater (Figure 1), whereas Dr. Agnew is bathed in light (Figure 2).

It is sad that it is the function of white coats as an emblem of cleanliness that is being challenged. The NHS says that white uniforms can kill by spreading methicillin-resistant *Staphylococcus aureus* and that the long sleeves are the biggest culprits; but the evidence is really nonexistent. Although it has been possible to culture *S. aureus* from about 10% of white coats of hospital doctors, disease transmission

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Figure 2 | *The Agnew Clinic*, Thomas Eakins. Reprinted courtesy of the University of Pennsylvania Art Collection, Philadelphia, Pennsylvania.

has never been tested, let alone shown. Of course it has always been known that uniforms can kill, but the best evidence shows that they are fatal to the wearer. Most of the defeats of Napoleon, the man most obsessed with uniforms (there is even an encyclopedia of his uniforms), could be ascribed to uniforms. When he invaded Egypt in the height of summer, his woolen uniforms caused massive numbers of deaths from heat exhaustion and dehydration. During the retreat from Moscow, when these heavy woollens should have been protective, they turned out to harbor all sorts of disease-carrying parasites. Recent studies on exhumed corpses of his *Grande Armée* showed that the uniforms contained lice that harbored DNA of *Bartonella quintana*, the agent of trench fever. Lice (which also transmit typhus) were found in as many as one-third of these uniforms.³ Despite the anecdotal nature of the evidence, the minister of health of the UK has already formulated a naked-below-the-elbow policy, which means that white coats as we know them will no longer exist; but since uniforms will still have to be worn for both practical and symbolic reasons, new designs will have to be generated.

So does this mean that we will have to wear OR-type scrubs? That might work for surgeons or house staff, but, for the attending medical staff, new 'real' uniforms will have to be designed. This should come as exciting news for the fashion-conscious; I can't wait to get my first Giorgio Armani white coat. Apparently the more fashionable doctors on Park Avenue are already getting their white coats from a chic supplier in Paris, where it seems that having Nehru collars and a more flattering silhouette is the latest thing.⁴ The fashion industry has always been interested in the aura of the white coat, though to them one feels it signified more the aura of the mad

scientist than of the beneficent healer. One Paris couturier actually began his show this year with a single girl in a white coat. But a more 'serious' *fashionista*, Valerie Steele of New York's Fashion Institute of Technology, has already argued darkly (although it is difficult to decipher fashionspeak) that the white coat provides "a combination of the minimal and the medical, with a sort of creepy sadomasochistic edge to it, and it plays into our fears about technology and biotechnology. You're choosing to look as though you were the one who has the power over life and death."⁵ Without the poor white coat to kick around, a deep hole in the culture is opening.

Although I think we should all be prepared to dress in new garb, we still have to be concerned about the patient's feelings about all of this. Unfortunately, it seems that patients prefer to see their doctors in white coats.⁶ Detailed questionnaires suggest that a patient's trust in physicians required at least two of the following items: a white coat, dress pants, a dress shirt, and a tie. But all confidence would dissipate if a nose ring were worn (I am not making this up!).⁷ The older the patient, the more he or she wanted a white coat; teenagers had no real preference for a specific type of dress. I am sure that if we throw away the white coat, we will have to replace it with another uniform, since the authority of the profession needs to be maintained. Regardless of the priestly-garb issue, we have to wear something that would make it easier for patients to tell who the doctors are, let alone managing infection control. Once that is settled, we will still have the big question in our own renal community: When will the tyranny of the blue blazer and khaki pants that are the uniform of the nephrologist be overthrown?

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